

In the Claims:**Claim 1 (previously presented):**

- 1 1. A method for making a series of nanoscale microstructures comprising the steps of:
- 2 (1) forming a chiral block copolymer containing a first polymer block of a first polymer
3 and a second polymer block of a second polymer, wherein at least said first polymer
4 is a chiral polymer exhibiting chirality, and said first and second polymer blocks are
5 capable of being subject to a micro-phase separation and said first polymer has a
6 volume fraction ranging from 10 to 90%;
- 7 (2) causing a microphase separation in said chiral block copolymer;
- 8 wherein said first polymer is poly(L-lactide) and said second polymer is selected from the
9 group consisting of polystyrene and pol(4-vinylpyridine), further wherein said chiral block
10 copolymer is poly(styrene)-poly(L-lactide) (PS-PLLA) chiral block copolymer when said
11 second polymer is polystyrene and poly(4-vinylpyridine)-poly(L-lactide) (P4VP-PLLA)
12 chiral block copolymer when said second polymer is pol(4-vinylpyridine);
- 13 further wherein said poly(styrene)-poly(L-lactide) (PS-PLLA) chiral block copolymer is
14 prepared using a polymerization process comprising the following steps:
- 15 (a) mixing styrene with BPO and 4-OH-TEMPO to form 4-hydroxy-TEMPO-terminated
16 polystyrene; and
- 17 (b) mixing said 4-hydroxy-TEMPO-terminated polystyrene with L-lactide in an organic
18 solvent to form said poly(styrene)-poly(L-lactide) chiral block copolymer.

Claim 2 (original):

- 1 2. The method for making a series of nanoscale microstructures according to claim 1, wherein
2 said chiral block copolymer is poly(styrene)-poly(L-lactide) (PS-PLLA) chiral block
3 copolymer, said first polymer is poly(L-lactide), and said second polymer is polystyrene.

Claim 3 (original):

- 1 3. The method for making a series of nanoscale microstructures according to claim 1, wherein
2 said chiral block copolymer is poly(4-vinylpyridine)-poly(L-lactide) (P4VP-PLLA) chiral
3 block copolymer, said first polymer is poly(L-lactide), and said second polymer is pol(4-
4 vinylpyridine).

Claim 4 (previously presented):

- 1 4. The method for making a series of nanoscale microstructures according to claim 1, wherein
2 said first polymer has a volume fraction ranging from about 20% to about 49%.

Claim 5 (original):

- 1 5. The method for making a series of nanoscale microstructures according to claim 1, wherein
2 said nanoscale microstructures are a series of helical microstructures.

Claim 6 (original):

- 1 6. The method for making a series of nanoscale microstructures according to claim 1, wherein
2 said nanoscale microstructures are a series of cylindrical microstructures each with a
3 hexagonal crosssection.

Claim 7 (canceled):

Claim 8 (original):

- 1 8. The method for making a series of nanoscale microstructures according to claim 7 1, wherein
2 said polymerization process is a living polymerization in which monomers are sequentially
3 added to a polymerization mixture.

Claim 9 (previously presented):

- 1 9. The method for making a series of nanoscale microstructures according to claim 1, wherein
2 said phase separation of said chiral block copolymer is achieved through crystallization.

Claim 10 (currently amended):

- 1 10. ~~An A~~ process for making an article of manufacture containing a series of repeating nanoscale
2 microstructures formed in a substrate which is formed using a process comprising the steps
3 of:
- 4 (1) forming a chiral block copolymer containing a first polymer block of a first polymer
5 and a second polymer block of a second polymer, wherein at least said first polymer
6 is a chiral polymer exhibiting chirality, and said first and second polymer blocks are
7 capable of being subject to a micro-phase separation and said first polymer has a
8 volume fraction ranging from 10 to 90%;
- 9 (2) causing a microphase separation in said chiral block copolymer;
- 10 wherein said first polymer is poly(L-lactide) and said second polymer is selected from the
11 group consisting of polystyrene and pol(4-vinylpyridine), further wherein said chiral block
12 copolymer is poly(styrene)-poly(L-lactide) (PS-PLLA) chiral block copolymer when said
13 second polymer is polystyrene and poly(4-vinylpyridine)-poly(L-lactide) (P4VP-PLLA)
14 chiral block copolymer when said second polymer is pol(4-vinylpyridine);
- 15 further wherein said poly(styrene)-poly(L-lactide) (PS-PLLA) chiral block copolymer is
16 prepared using a polymerization process comprising the following steps:
- 17 (a) mixing styrene with BPO and 4-OH-TEMPO to form 4-hydroxy-TEMPO-terminated
18 polystyrene; and

- 19 (b) mixing said 4-hydroxy-TEMPO-terminated polystyrene with L-lactide in an organic
20 solvent to form said poly(styrene)-poly(L-lactide) chiral block copolymer.

Claim 11 (currently amended):

- 1 11. The ~~article of manufacture~~ process according to claim 10, wherein said block copolymer is
2 a poly(styrene)-poly(L-lactide) chiral block copolymer, and said first polymer is poly(L-
3 lactide) and said second polymer is polystyrene.

Claim 12 (currently amended):

- 1 12. The ~~article of manufacture~~ process according to claim 10 wherein said block copolymer is
2 a poly(4-vinylpyridine)-poly(L-lactide) chiral block copolymer, and said first polymer is
3 poly(L-lactide) and said second polymer is poly(4-vinylpyridine).

Claim 13 (currently amended):

- 1 13. The ~~article of manufacture~~ process according to claim 10 wherein said first polymer has a
2 volume fraction ranging from about 20% to about 49%.

Claim 14 (currently amended):

- 1 14. The ~~article of manufacture~~ process according to claim 10 wherein said nanoscale
2 microstructures are a series of helical microstructures.

Claim 15 (currently amended):

- 1 15. The ~~article of manufacture~~ process according to claim 10 wherein said nanoscale
2 microstructures are a series of cylindrical microstructures each with a hexagonal crosssection.

Claim 16 (canceled):

Claim 17 (currently amended):

- 1 17. The ~~article of manufacture~~ process according to claim 10 wherein said polymerization

2 process is a living polymerization in which monomers are sequentially added to a
3 polymerization mixture.

Claim 18 (currently amended):

- 1 18. The ~~article of manufacture~~ process according to claim 10 wherein said phase separation of
2 said chiral block copolymer is achieved through crystallization.

Claims 19-21 (canceled):